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# New records of the genus *Hansenomysis* in Japan with description of a new species (Crustacea: Mysidacea: Petalophthalmidae)

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*Abstract.*—A new species, *Hansenomysis japonica,* and a species tentatively identified as ?*Hansenomysis lucifugus* (Faxon, 1893), of the mysid family Petalophthalmidae, were collected from Japanese waters. *Hansenomysis japonica* is clearly distinguishable from the nearest species of the genus, *H. violacea* (Birstein & Tchindonova, 1958), by the long acute horns of the eyeplate, the narrower antennal scale, the segmented carpopropodus of the endopod of the eighth thoracopod, and the longer and narrower telson. The new species is the fifth described species of *Hansenomysis* in the Pacific Ocean. ?*Hansenomysis lucifugus* has not previously been recorded from Japan and western Pacific, if the identification is correct. A key to the species of *Hansenomysis* is also included.

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The genus *Hansenomysis* was established by Hansen in 1887, under the name *Arctomysis,* to incorporate *A. fyllae* collected southwest of Greenland. However, *Arctomysis* was already allocated to a different species (Czerniavsky 1883), and Stebbing (1893) changed the name to *Hansenomysis.* Since the establishment of the genus, the classification of its species has experienced notable changes. *Hansenomysis lucifugus* and *H. violacea,* were initially described as the two only species of the genus *Scolophthalmus.* Birstein & Tchindonova (1970) transferred these two species of *Scolophthalmus* to *Hansenomysis.* Later, Murano & Krygier (1985) transferred five *Hansenomysis* species to *Bacescomysis,* which was established by them for *B. pacifica,* based mainly on the exopod of uropod which is a 2-segmented plate in the former genus, but unjointed in the latter. The most recent species of *Hansenomysis, H. carinata,* was described by Casanova (1993) for a single male specimen from the New Caledonian area.

Presently, the genus *Hansenomysis* consists of 15 species. The new species, *Hansenomysis japonica,* is the 16th species of the genus. ?*Hansenomysis lucifugus,* is reported for the first time from Japan and the western Pacific. Table 1 shows the latitudinal occurrence, the adult body length, and the habitat of each species of *Hansenomysis.*

The type specimens of *H. japonica* are deposited in the National Science Museum, Tokyo (NSMT).

## Order Mysidacea Boas, 1883
## Suborder Petalophthalmida Tchindonova, 1981
## Family Petalophthalmidae Czerniavsky, 1882
## Genus *Hansenomysis* Stebbing, 1893

*Arctomysis.*—Hansen, 1887:210.
*Scolophthalmus.*—Faxon, 1893:219; 1895: 224–226.

*Diagnosis.*—Carapace very short. Eyes fused in single plate, without visual pig-

Table 1.—Latitude (n°), adult body length (mm), and habitat or depth (m) of the species of *Hansenomysis* Stebbing, 1893 (Mauchline & Murano 1977, Lagardère 1983, Casanova 1993).

| Species | Latitude | Body length | Habitat/depth | Occurrence |
|---|---|---|---|---|
| *H. angusticauda* O. S. Tattersall, 1961 | 75S | >26 | mesopelagic | Ross Sea, Palmer Archipelago |
| *H. antarctica* Holt & Tattersall, 1906 | 53S–76S | 20–23 | 100–400 | Antarctic |
| *H. armata* Birstein & Tchindonova, 1958 | 50N–35N | 13 | 2960 | Kurile-Kamchatka Trench |
| *H. carinata* J.-P. Casanova, 1993 | 23S | | 950–1000 | New Caledonia |
| *H. chini* Băcescu, 1971 | 8S | >12 | 2000 | Peru Trench |
| *H. falklandica* O. S. Tattersall, 1955 | 50S–53S | 12–15 | 200–400 | Southern Oceans |
| *H. fyllae* (Hansen, 1887) | 70N–40N | 16–17 | 150–1500 | North Atlantic |
| *H. japonica* new species | 35N | 12 | 590 | Japan |
| *H. lucifugus* (Faxon, 1893) | ?35N–0 | 42 | ?742–2000 | Off Galapagos, ?Japan |
| *H. menziesi* Băcescu, 1971 | 8S | 22 | 2000 | Peru Trench |
| *H. nouveli* Lagardère, 1983 | 56N–44N | 14–18 | 1913–2498 | Bay of Biscay |
| *H. pseudofyllae* Lagardère, 1983 | 48N–44N | 14.4 | 1950–4829 | Bay of Biscay |
| *H. rostrata* Birstein & Tchindonova, 1970 | 44N | 32–35 | bathypelagic | Kurile-Kamchatka Trench |
| *H. spenceri* Băcescu, 1971 | 8S | 17 | 2000 | Peru Trench |
| *H. tropicalis* Băcescu, 1967 | 8S | >8 | 2000 | Peru Trench |
| *H. violacea* (Birstein & Tchindonova, 1958) | 43N | 19 | bathypelagic | Kurile-Kamchatka Trench |

ments or with small pigmented area. Dorsal surface of proximal region of antennular peduncle having what is identified as a sensorial organ called the "Tattersall organ" (Băcescu 1971). Antennal scale lanceolate with spines and setae. Maxilla and maxillule normal. First and 2nd thoracopods robust; endopods of 3rd–5th thoracopods slender, with chelate structure terminally; endopods of 6th–8th thoracopods slender with dactylus and nail together forming long slender claw. Pleopods of female uniramous; 1st–4th pleopods unsegmented; 5th pleopod longest, 2 or 3-segmented. Pleopods of male biramous; 1st with endopod unsegmented, exopod segmented; 2nd pleopod with exopod segmented and modified, endopod segmented. Endopod of uropod 2-segmented, without spines on its inner margin; exopod of uropod 2-segmented, proximal segment with spines on outer margin. Telson elongate, entire, without plumose setae on apex, posterior part of the lateral margins armed with long strong spines separated by groups of short spines.

*Type species.*—*Hansenomysis fyllae* (Hansen, 1887)

## *Hansenomysis japonica,* new species
Figs. 1, 2, 3A–D

*Type specimens.*—Holotype (NSMT-Cr 11910), adult male 12.0 mm; paratype (NSMT-Cr 11911), juvenile 8.8 mm; 17 Oct 1990, Sagami Bay (35°09.0′N, 139°24.6′E), 590 m, sledge net.

*Description of male.*—Body robust, elongate. Carapace without spines, covering laterally part of 7th thoracic somite, and dorsally all but 6th–8th somites; anterior margin broadly rounded without rostral projection, leaving fused eyes uncovered (Fig. 1A); anterolateral corner sharply pointed.

Eyes fused in single plate with 2 acute median horns, outer margin undulated. Eyeplate with 2 fused rounded bulks of visual pigments away from eyeplate margin (Fig. 1A).

Antennular peduncle robust; first segment longest, basal dorsal surface with well-developed Tattersall organ (Fig. 1A),

2nd segment about same length as 3rd in dorsal view, shorter in ventral view (Fig. 1B), with blunt process armed with setae at distal outer corner. Outer flagellum very robust, clearly separated into subsegments, each subsegment with rounded inner margin armed with 2 rows of tight setae (Fig. 1B).

Antennal scale lanceolate, nearly 5 times as long as the maximum width, extending beyond distal end of antennular peduncle for 0.75 of its length, setose all round except for proximal 40% of outer margin. Outer distal edge of naked margin with 4 spines that gradually increase in length (Fig. 1C). Peduncle slightly shorter than scale but considerably longer than antennular peduncle, 3-segmented, 1st segment very short, 3rd segment about half length of 2nd. Sympod with one spine at base of scale (Fig. 1C).

Mandible with strong lacinia mobilis; palp large and slender, 3-segmented, 1st segment shortest, 2nd segment about twice as long as 3rd (Fig. 1D). Labrum symmetrical, pentagonal, wider than long, without frontal spiniform process (Fig. 1E). Maxillule with 7 spines and 1 seta on outer lobe. These spines bear small spinules on margins. Inner lobe with 7 setae, apical 3 large and plumose (Fig. 1F). Maxilla with distal segment of endopod longer than wide, densely setose on inner margin and scarcely setose on outer margin; proximal segment with 4 setae on inner margin; exopod large, with 26 setae on margin (Fig. 1G).

First thoracopod small and robust, without exopod; endopod with short preischium and dactylus, ischium, merus and carpopropodus similar in length; dactylus with 3 long plumose spines on distal margin, carpopropodus bearing single, long plumose spine on inner margin, merus with 5 plumose spines on inner margin, ischium with 5 shorter plumose spines on inner margin, preischium and basis with plumose setae but not spines on inner margins (Fig. 1H). Second thoracopod robust, endopod with 1 spine on outer margin of ischium, inner margin produced into very large lamellar lobe armed with many simple setae, preischium shortest, merus longest with expanded inner distal part, dactylus with long and slender nail (Fig. 2A). Third to 5th thoracic endopods long and slender, forming minute chelate structure terminally, but concealed by crown of long setae (Fig. 2B). Endopod of 3rd thoracopod with carpopropodus unsegmented and about equal to merus in length (Fig. 2C). Endopod of 5th thoracopod with carpopropodus longer than merus and divided in 2 subsegments by oblique articulation, proximal subsegment very short (Fig. 2D). Sixth to 8th thoracic endopods long and slender, dactylus and nail together forming long slender claw. Endopod of 8th thoracopod with carpopropodus separated into 3-subsegments by oblique articulations, proximal subsegment very short but 2nd shortest, merus longer than carpopropodus; penis cylindrical (Fig. 2E). Thoracic exopods distal to basal plate 9-segmented in 2nd limb, and 10-segmented in 3rd to 8th limbs; 1st segment longest.

Sixth pleonite about 1.7 times as long as 5th.

Pleopods developed, biramous. First pleopod with exopod 9-segmented, endopod unsegmented, expanded distally, not reaching distal end of 1st segment of exopod (Fig. 2F). Second pleopod (Fig. 2G) with 7-segmented exopod, 1st segment thick, 2nd segment extended, provided with 2 short simple setae and one strong spinous seta that is spinulose in distal part. This spinous seta extending beyond distal end of exopod. Endopod 9-segmented, 1st segment thick and long (Fig. 2G, H). Third pleopod with both rami 9-segmented (Fig. 2I). Fourth pleopod with 9-segmented exopod; 8-segmented endopod, 1st segment very long, almost reaching distal end of 3rd segment of exopod (Fig. 3A). Fifth pleopod with 9-segmented exopod; endopod unsegmented, almost reaching 6th segment of exopod (Fig. 3B).

Uropods slender, long. Endopod without statocyst, slightly extending beyond distal

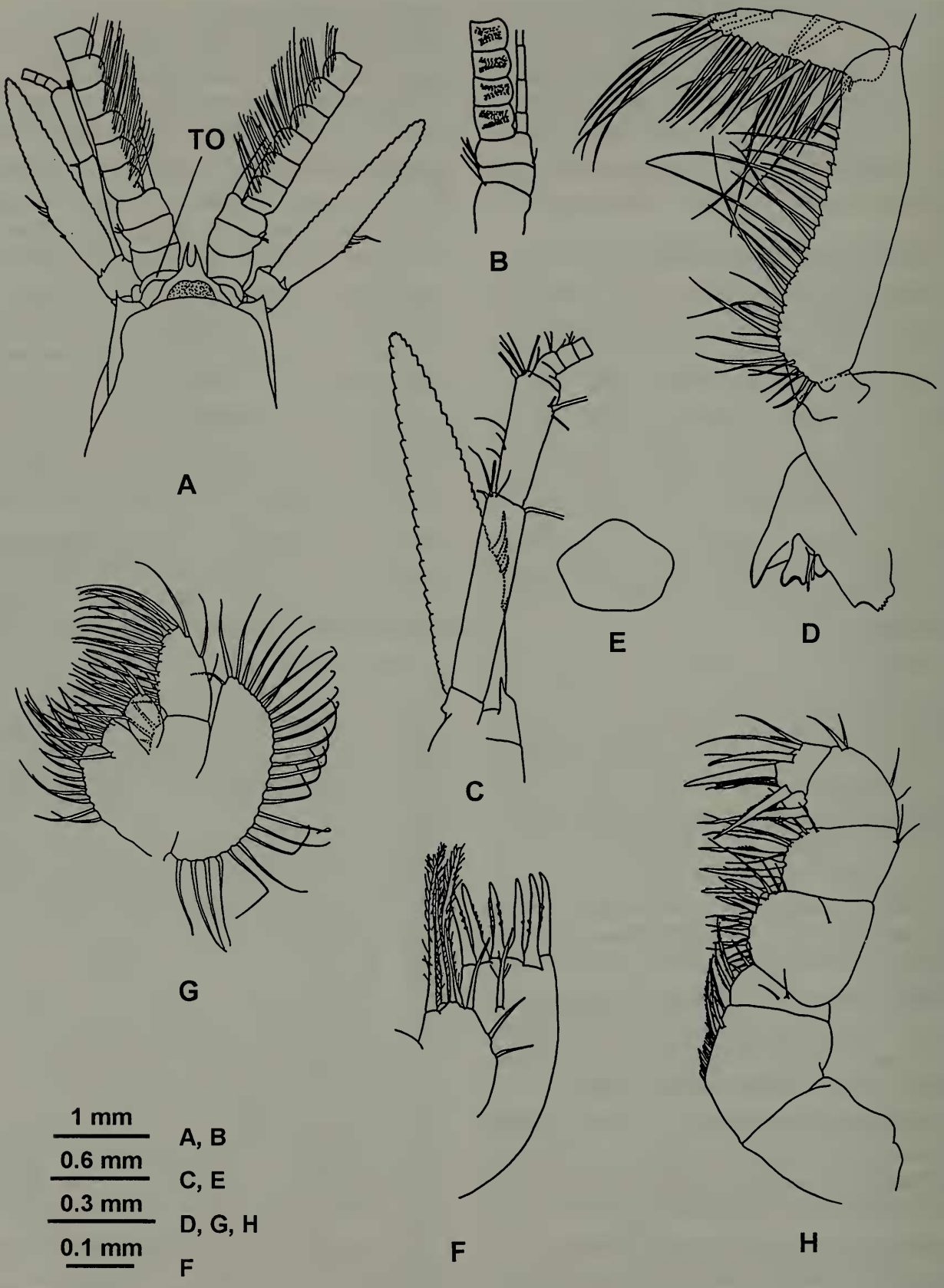


Fig. 1. *Hansenomysis japonica,* new species. Holotype, adult male. A, anterior part in dorsal view; B, antennular peduncle in ventral view; C, antenna; D, mandible; E, labrum; F, maxillule; G, maxilla; H, 1st thoracopod. Abbreviation, TO: Tattersall organ.

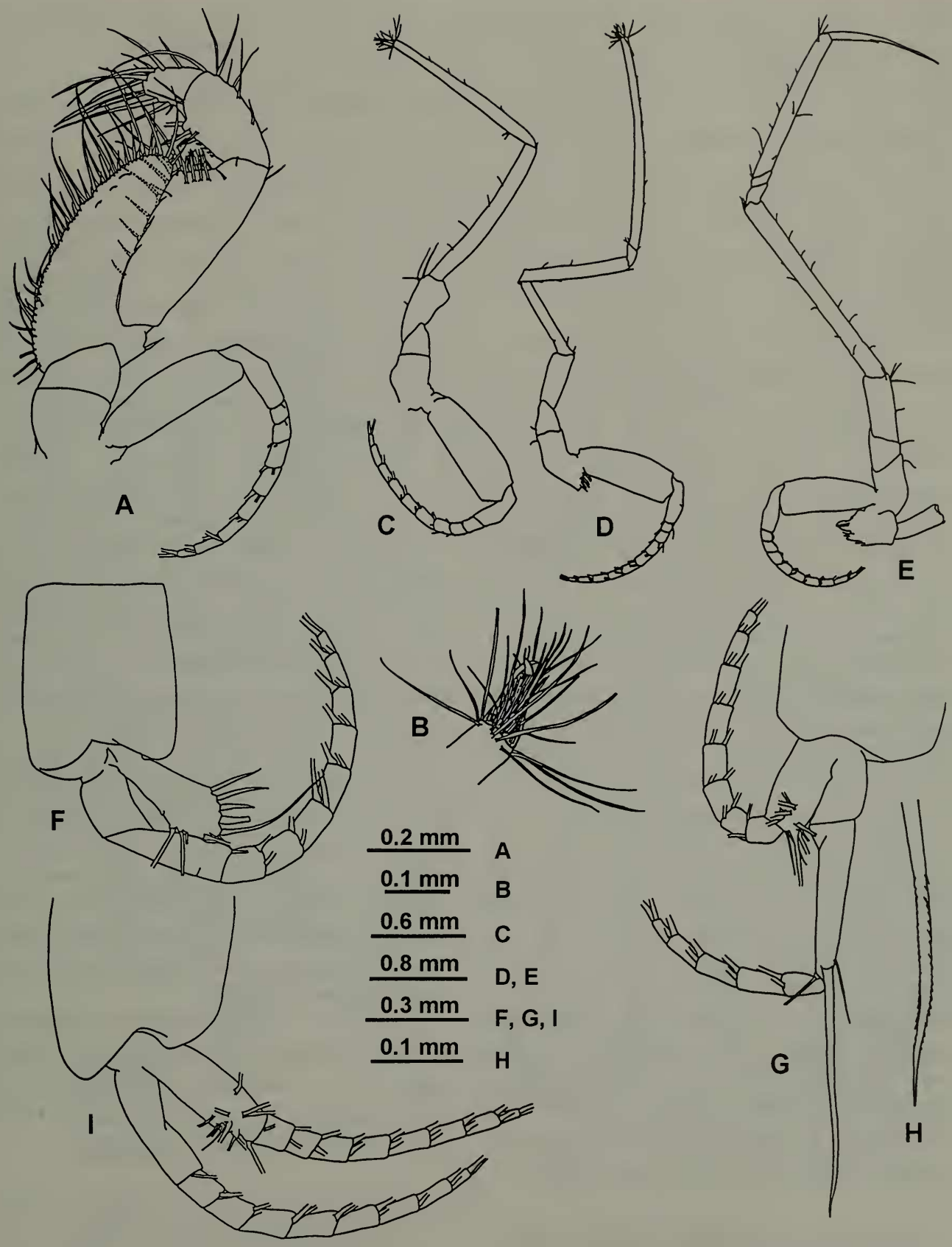


Fig. 2. *Hansenomysis japonica,* new species. Holotype, adult male. A, 2nd thoracopod; B, chela of endopod of 3rd thoracopod; C, 3rd thoracopod; D, 5th thoracopod; E, 8th thoracopod and penis; F, 1st pleopod; G, 2nd pleopod; H, distal part of modified seta on exopod of 2nd pleopod; I, 3rd pleopod.

edge of telson, 2-segmented, 1st segment 4.5 times longer than 2nd, which is lanceolated, setose all round without spines on inner margin. Exopod shorter than endopod, 2-segmented, 1st segment about 6 times longer than 2nd, armed in distal half of outer margin with 2 small, regularly spaced spines, and 3–4 closely set spines near distal end. The latter spines lengthen gradually towards extremity, inner margin setose, 2nd segment setose all round (Fig. 3C).

Telson entire (Fig. 3C), long and narrow, almost 3 times longer than 6th pleonite and about 4.2 times as long as broad, distal third tapered posteriorly in 3 steps, each step marked by strong spine; between these spines a series of 3–6 smaller spines. Remainder of lateral margin armed with 11–12 small spines regularly spaced, proximal 0.2 of lateral margin unarmed (Fig. 3C). Apex without plumose setae, truncate with 9 spines, central spine about same length as outermost spines; penultimate pair of terminal spines longest; two pairs of smaller spines on each side of central spine. Marginal spines moderately barbed (Fig. 3D).

*Etymology.*—The species name "japonica" refers to the collecting locality.

*Remarks.*—*Hansenomysis japonica* closely resembles *H. violacea* in general body form, but is easily distinguishable from it by the long acute horns of the eyeplate, the narrower antennal scale, the segmented carpopropodus of the endopod of the eighth thoracopod, and the longer and narrower telson. With *Hansenomysis armata* Birstein & Tchindonova, 1958, *H. lucifugus, H. rostrata,* and *H. violacea,* the new species is the fifth species of the genus recorded from the Pacific Ocean (Table 1).

?*Hansenomysis lucifugus* (Faxon, 1893)
Fig. 3E–G

*Scolophthalmus lucifugus.*—Faxon, 1893: 219; 1895:226, pl. LV, fig. 1.—Illig, 1930:556.—W. M. Tattersall, 1951:243.

*Material.*—Immature female 14.3 mm, 14 May 1995, Sagami Bay (35°05.9′N, 139°32.0′E), 742 m, sledge net.

*Remarks.*—*Hansenomysis lucifugus* was established by Faxon (1893) without illustrations, but a later redescription (Faxon 1895) included illustrations. His descriptions and illustrations, however, are brief, so that we cannot compare the present immature specimen with his type specimen. The following characters of the present specimen agree well with those of the type specimen: (1) carapace is produced to form an acute rostrum, anterolateral margins armed with two spines, one behind the external margin of the antennule, the other at the anterior inferior angle; (2) eyeplate bears two "spines"; (3) antennal peduncle with second and third segments about equal in length (Fig. 3E); (4) endopod of uropod slender with distal end extending beyond the telson and exopod (Fig. 3F). A difference is found in the fifth female pleopod. In the original description it is two-segmented whereas in the present our juvenile specimen it is unsegmented (Fig. 3G).

*Hansenomysis lucifugus* closely resembles *Hansenomysis rostrata*; they are the only two *Hansenomysis* species having the anterior margin of frontal carapace produced in an acute rostrum. *Hansenomysis rostrata,* however, differs from the former species in the telson which is ovate in shape and which does not bear large spines on the central region of apex.

*Distribution.*—Hitherto known only from the type locality, eastern Pacific off Galapagos. This is the first record of *Hansenomysis lucifugus* for Japan and western Pacific, if the identification is correct.

Key to species of the genus *Hansenomysis*
(Modified from Băcescu 1971)

1. Carapace with spines ..... 2
   Carapace without spines ..... 6
2. Posterolateral angles of pleonites produced in form of spine-like processes ..... 3
   Posterolateral angles of pleonites not

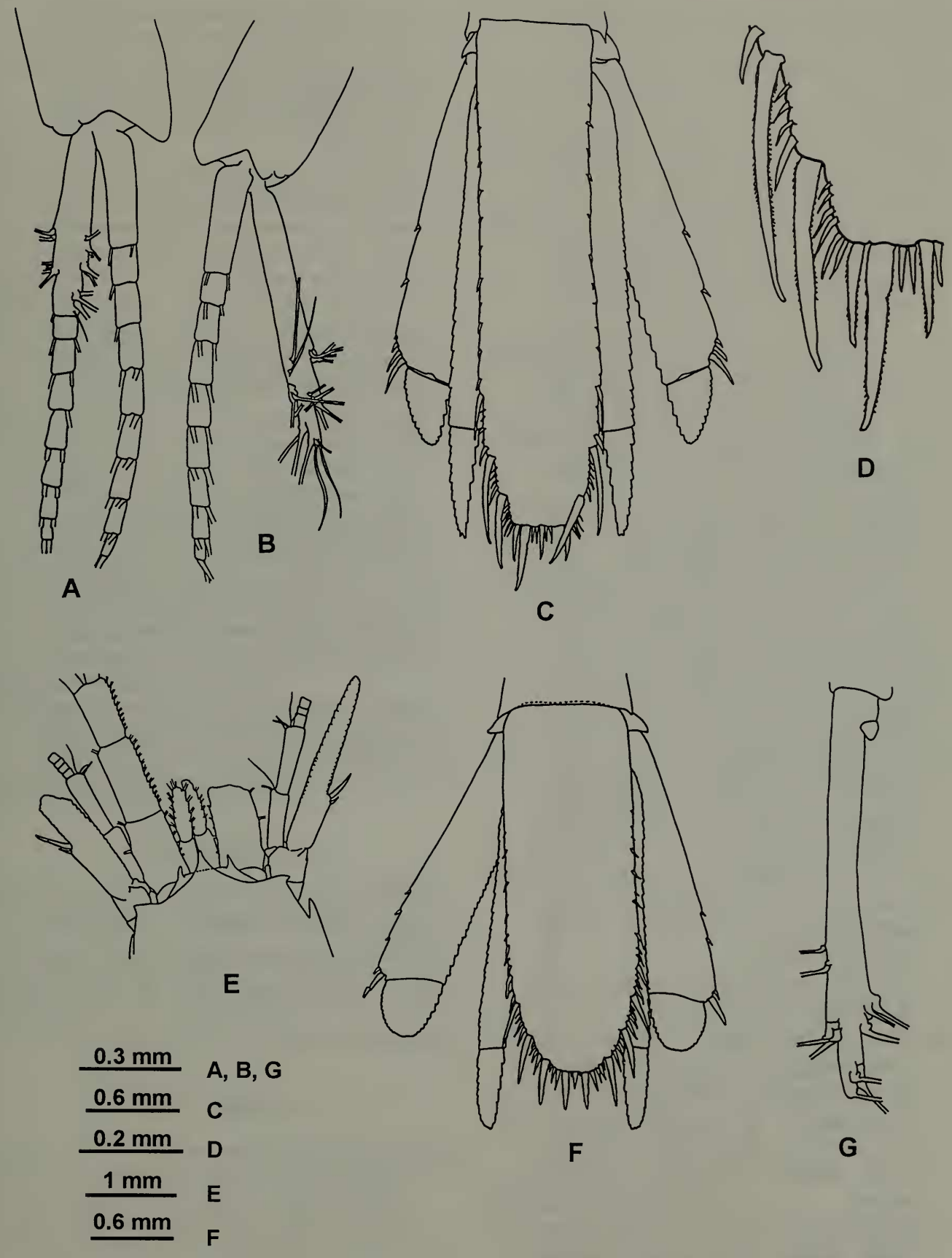


Fig. 3. *Hansenomysis japonica,* new species. Holotype, adult male. A, 4th pleopod; B, 5th pleopod; C, uropod and telson; D, apex of telson. ?*Hansenomysis lucifugus* (Faxon, 1893). Immature female. E, anterior part in dorsal view; F, uropod and telson; G, 5th pleopod.

produced in form of spine-like processes ..... 4
3. Eyeplate with 2 lateral processes .... ..... *H. menziesi* Băcescu, 1971
Eyeplate with 1 central process ..... ..... *H. nouveli* Lagardère, 1983
4. Outer margin of antennal scale with spines located among setae ..... *H. armata* Birstein & Tchindonova, 1958
Outer margin of antennal scale without spines located among setae ..... 5
5. Outer margin of antennal scale with 11–15 spines. Telson ovate ..... ... *H. antarctica* Holt & Tattersall, 1906
Outer margin of antennal scale with 17–23 spines. Telson long and narrow .. *H. angusticauda* O. S. Tattersall, 1961
6. Eyeplate with anterolateral or median horns or processes ..... 7
Eyeplate straight frontally or with weak lateral or median emargination ..... 12
7. Anterolateral or median horns or processes of eyeplate not acute ..... 8
Anterolateral or median horns or processes of eyeplate acute ..... 9
8. Apex of telson rounded and narrow. Outer margin of antennal scale with spines located among setae ..... .... *H. falklandica* O. S. Tattersall, 1955
Apex of telson broadly rounded. Outer margin of antennal scale without spines located among setae .... *H. violacea* ..... (Birstein & Tchindonova, 1958)
9. Apex of telson somewhat rectangular with truncate apex. Carapace without rostral projection ..... 10
Apex of telson rounded. Carapace with or without rostral projection ..... 11
10. Antennal scale shorter than peduncle. Outer margin of exopod of uropod unarmed except for 2 spines confined near distal suture *H. tropicalis* Băcescu, 1967
Antennal scale longer than peduncle. Outer margin of exopod of uropod armed ..... *H. japonica* new species
11. Outer margin of antennal scale without spines located among setae. Carapace with rostral projection .. *H. lucifugus* ..... (Faxon, 1893)
Outer margin of antennal scale with spines located among setae. Carapace without rostral projection ..... .....*H. pseudofyllae* Lagardère, 1983
12. Outer margins of antennal scale and exopod of uropod with spines located among setae .... *H. fyllae* (Hansen, 1887)
Outer margins of antennal scale and exopod of uropod without spines located among setae ..... 13
13. Distalmost spine of outer margin of antennal scale and of exopod of uropod extending beyond apices of respective lamina. Outer margin of exopod of uropod with 8 spines ..... *H. chini* ..... Băcescu, 1971
Distalmost spine of outer margin of antennal scale and of exopod of uropod not extending beyond apices of respective lamina ..... 14
14. Outer margin of exopod of uropod with less than 10 spines ..... 15
Outer margin of exopod of uropod with more than 10 spines. Exopod of uropod longer than endopod .... *H. carinata* ..... Casanova, 1993
15. Apex of telson rounded and narrow. Antennal scale with spines on distal half of outer margin .... *H. spenceri* ..... Băcescu, 1971
Apex of telson broadly rounded. Antennal scale with spines on proximal half of outer margin ..... *H. rostrata* ..... Birstein & Tchindonova, 1970

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